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ABSTRACT

Collecting time-on-task data is necessary in order to research methods for increasing student time-on-task and to provide feedback to teachers on what teaching behaviors produce high levels of on-task behaviors in students. A student and a teacher behavior data collection instrument developed for research in the area of academic learning time is presented, along with information on training persons to use these instruments and suggestions for their application in various settings. (Author/PN)

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ASSESSING TIME-ON-TASK:

MEASUREMENT PROBLEMS AND SOLUTIONS

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Paper presented at the 1983 Joint Meeting of Evaluation Network and Evaluation Research Society, Chicago, Illinois, October 20, 1983.

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ABSTRACT

Collecting time-on-task data is necessary in order to research methods for increasing student time-on-task and to provide feedback to teachers on what teaching behaviors produce high levels of on-task behaviors in students. Instruments developed by the Detroit Public Schools as part of a research contract with the National Institute of Education in the area of academic learning time are presented in this paper along with information on training persons to use these instruments and suggestions for their application in various settings.

ASSESSING TIME-ON-TASK: MEASUREMENT PROBLEMS AND SOLUTIONS

Introduction

The Detroit Public School District is one of four sites under contract with the National Institute of Education to conduct research funded by Follow Through monies in the area of Academic Learning Time (ALT).

One of the major components of ALT is the concept of time-on-task. During the first year of Detroit's four-year contract, extensive planning activities were undertaken in the area of data collection. Instruments were developed to collect data on students' on-task/off-task status during mathematics and reading classes. The students involved in this project were in grades one through four. Instruments to collect data on teacher behaviors were also developed in order to provide feedback to teachers relative to which of their behaviors resulted in high on-task student behavior and which resulted in off-task student behavior. Simultaneous measures of teacher behavior and student on-task/off-task behavior were required.

Data collection procedures had to be simple enough so that all teachers involved in the project would feel comfortable using them and unobtrusive so as not to interrupt the normal classroom routine. Data from these instruments were used for evaluation purposes for the project: interim results to help steer participants through a series of interventions designed to increase their knowledge of classroom management strategies and instructional strategies which research has shown to increase student on-task behavior and student achievement, and pre-post data used to assess the success of the project over time.

This paper describes two instruments developed during this planning period and refined during the first year of project implementation. Training procedures for persons using the instruments are also described.

Student Data Collection

After reviewing the literature (Borish and Schulte, 1981; Floden and Porter, 1981; Stallings, 1980), it was determined that observations made every two (2) minutes throughout a class period would give a valid "snapshot" of student behavior. Data were collected on every pupil in the room during the class period so that comparisons for individual students could be made in their on-task rates and correlations with achievement gains could be examined. Students in this project were quite young and classroom practices frequently involved regrouping pupils several times during a single instructional period (e.g., reading groups moved from seat work to oral reading and instruction). These constraints indicated that the data collection method employed must be flexible while recording data on every child every two (2) minutes.

FIGURE 1 ABOUT HERE

For students in the upper grades, a seating chart format was used. An example of this seating chart appears in Figure 1. On the seating chart, each student's name was recorded in a rectangle representing his/her location in the classroom. Sufficient space was available in the rectangle to record 25 codes, one every two minutes for each child. The codes were recorded in five rows of five codes each. The codes were: a plus sign (+) when the student was determined to be on-task, a minus sign (-) when the student was determined to be off-task, and a zero (0)

when the coder was unable to determine the student's status. For those students in the lower grades, a list of the children's names was used and children wore name tags so that the coder was able to identify them. Coding took place adjacent to each student's name on the list using the same codes used on the seating chart. This procedure allowed coders to keep track of children in classes where frequent regrouping of pupils made a seating chart impractical.

Definitions of on-task and off-task behavior were developed along with examples of each type of behavior in order to insure reliable data on students. On-task behavior was defined as students participating in the intended lesson which was related to either reading or mathematics. Examples of on-task behaviors included: participating in guided lessons, responding orally, engaged in a written assignment, engaged in a discussion that was relative to the lesson, and taking a test or quiz.

Off-task behavior was defined as behaviors not related to the lesson or a lack of involvement on the part of students. Examples of off-task behaviors included: engaged in a social interaction, uninvolved in the lesson, exhibiting disruptive behavior, waiting for help, being disciplined, sharpening pencils, daydreaming, and roving about the room.

Coders were instructed to attempt to code students either on- or off-task if at all possible. The zero (0) code was used only when the coder was unable to observe the student for some reason. Students were coded based upon a snapshot approach: the coder "swept" the students, always following the same path, and recorded what he/she observed each student's status to be at the moment of the observation. Because coding must be completed very rapidly, no attempt was made to make cumulative

judgements concerning the students' behavior during the entire two-minute interval. Since each of the 25 observations represented only 4 percent of the total observation, errors resulting from this procedure were minimized.

Classroom Data Collection

Data on teacher behaviors occurring during the class period were also collected. One of the primary project goals was to increase teachers' use of instructionally appropriate behaviors while decreasing those teacher behaviors which caused students to move off-task or which research had shown did not produce positive results in terms of increased student learning. It was necessary to collect data on teacher behaviors concurrently with student data in order to link student behaviors with teacher behaviors during feedback sessions with teachers.

In addition to data on specific teacher behaviors, data indicating the activities in which all members of the class were involved were important. Student data indicated only on-task/off-task status. In order to document the activities occurring in the classroom while data were being collected, the teacher behavior instrument was designed to account for all activities occurring in the classroom during each two-minute coding period. Numbers of students involved in each activity were recorded in order to achieve this objective. A sample of the Classroom Observation Form appears in Figure 2.

FIGURE 2 ABOUT HERE

Four categories of data were recorded on this form: non-interactive instruction, interactive instruction, off-task, and organization.

Non-interactive instruction included silent reading and seat work. Interactive instruction included oral reading, instructional explanation, giving directions, discuss/review assignments, and practice/drill. Off-task behaviors indicated the number of students off-task. Organization included management, distribute/collect materials, and transitions. Specific definitions of each of these terms appear in Figure 3. Each observation period consisted of two minutes. During this two-minute period, the coder first recorded data for each of the students in the class on the Student Observation Form. After all students had been coded, the number of students involved in each of the activities on the Classroom Observation Form was recorded. Finally, the activity in which the teacher was directly involved was indicated by circling the number of students involved in that activity.

FIGURE 3 ABOUT HERE

As a guide to participants, target percents for each area were also indicated on the form. These targets were from Stallings (1980). She found that the most effective teachers used interactive instruction at least 50 percent of the time, used non-interactive instruction, at most, 35 percent of the time, used 15 percent or less of the time for organizational activities, and used 5 percent or less of the instructional time in off-task behaviors. In order for participants to compute their own percentages based upon observation data, the number of observation periods in which the teacher was involved in each of the four areas was recorded and converted to a percent. This number was indicated on the observation form by counting how many circled numbers were in each activity.

Coder Training

The instruments described above were designed for use by elementary teachers conducting classroom observations of their peers. The instruments were field tested in classrooms at all levels, K-12, and were found to give valid and reliable data on student on- and off-task behaviors and classroom activities. The instruments were also used by graduate students in education to collect data in project classrooms which were used as baseline information before project implementation and as a final observation for pre-post comparisons for project evaluation purposes during each year of project implementation.

Training observers required that they become familiar with the operational definitions of the behaviors to be observed and that they be given an opportunity to familiarize themselves with the instruments before attempting to collect any data.

Once coders felt comfortable with the definitions and the location of the items on the observation forms, the group was given an opportunity to observe video tapes of classes in session which could be stopped so that discussion of various events could take place in terms of how they should be coded on the forms. In the Detroit project, video tapes from the Georgia Teacher Evaluation Project were used for this phase of the training. Concensus was reached by the coders as to how various situations should be coded in a relatively short period of time.

The next step was to send coders into actual classrooms in pairs. Each coder in the pair coded the students and the classroom behaviors simultaneously but without knowledge of the codes used by his/her

partner. Following the coding period, a de-briefing session where the pair exchanged the results of their coding and discussed any discrepancies was helpful in improving inter-coder reliabilities. Several practice sessions were provided so that coders felt comfortable with the forms and the procedures involved.

Most individuals were able to learn to use the forms and collect reliable and valid data in two days. The initial apprehension expressed by most coders the project trained was that the time constraints involved were unrealistic; i.e., two minutes was not enough time to collect data on all students and to record a snapshot of the classroom. Following training, nearly all found that they had more than enough time to collect and record the required data, and that the two minute time period was much longer than they first believed.

Summary and Recommendations

Collecting reliable and valid data on students and teachers related to time-on-task can be accomplished using a single observer in a classroom if sufficient planning is undertaken and if the observer is properly trained.

The results of the data collection are useful to teachers who have been observed. The data give teachers feedback relative to their behaviors and teaching practices and information on every student in their classroom over an entire class period. The procedures outlined above have been used successfully to collect data in classrooms from kindergarten through grade twelve. The behaviors observed are a subset of all possible behaviors which could be observed in a classroom. It is

strongly suggested that teachers who are to be observed, have input into which behaviors are to be observed and that opportunities for help be offered to teachers who fall below or above target in any given behavioral area. It is also suggested that student data be used by teachers to target instruction and to examine the difficulty level and appropriateness of learning tasks assigned to students who are habitually off-task. If the process of collecting data in the area of time-on-task is viewed as beneficial to all involved, it can result in improved instruction. If, however, it is viewed as punitive by teachers, the results in changed behavior will be minimal.

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FIGURE 1

DETROIT PUBLIC SCHOOLS

PEER TEACHERS AS MIRRORS AND MONITORS

Student Time-On-Task Observation Form

Teacher _____ Time ____:____ to ____:____

School _____ Grade:____ Subject _____

Room ____ Date _____

Observer _____

SEATING CHART

FIGURE 2

PEER TEACHERS AS MIRRORS AND MONITORS
Observation Form

DIRECTIONS: During each 2 minute observation, record the number of students involved in each of the activities listed below. Circle the number of students involved in activity in which the teacher is directly participating.

School:_____ Teacher:_____ Grade:____ Room:____ Subject:_____ Observer:_____ Date:_____

Start time:____:____ End time:____:____ Number of students:_____

	Observation #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	Number of Circles
Non-Interactive Ins.	Activity																										
	Silent Reading																										
	Seat Work																										
Interactive Instruction	Oral Reading																										
	Instructional Explanation																										
	Giving Directions																										
	Discuss/review assignments																										
	Practice/ Drill																										
Off Task	Students Off Task																										
Organization	Management																										
	Distribute/Collect materials																										
	Transitions																										

SUMMARY INFORMATION	total number teacher circles in each area	percent of observations in each area*	target percents for each area
Non-Interactive Instruction	_____	_____	35% or less
Interactive Instruction	_____	_____	50% or more
Off-Task	_____	_____	5% or less
Organization	_____	_____	15% or less

*Divide the total number of teacher circles by the number of observations and multiply your answer by 100

Figure 3

PEER TEACHERS AS MIRRORS AND MONITORS
Classroom Observation Form Activities

ACTIVITY	DESCRIPTION
Silent Reading	Students are reading silently to themselves as a group activity or are working on individual assignments. No writing.
Seat Work	One or more students is/are writing papers, doing computation, or involved in any other silent written work related to the lesson.
Oral Reading	One or more students is/are reading a section from a play aloud or reading a book for the class or reading group to hear. Oral reading is usually not done in unison; generally, students take turns reading sequential sections from a book. The teacher or the student(s) can also read aloud while the rest of the class follow along in their own texts.
Instructional Explanation	An adult is informing some grouping of students about a subject. Academic discussion or slow-paced quention/answer session takes place regarding lecture material, assignments, or problems.
Giving Directions	An adult is explaining an activity, the procedures to be followed, the amount of work to be finished, or rewards for completing the assignment. The discussion is not focusing on the academic content, but on the information that students need to carry out the assignment (or discussing grades).
Discuss/Review Assignment	One or more students is/are receiving information or feedback on work they have completed, or are being evaluated on their work preparatory to continuing the assignment.
Practice/Drill	One or more students is/are verbally involved in reinforcing, repetitive, or rote work. This activity must be differentiated from seat work. Students writing verbal material, as in dictation, are also coded Practice/Drill.

Figure 3 (Continued)

PEER TEACHERS AS MIRRORS AND MONITORS
Classroom Observation Form Activities

ACTIVITY	DESCRIPTION
Students Off-Task	One or more students or teacher and students are interacting about work or subjects other than class-related material, or students are not involved in any activity, are arriving or leaving, or moving about the room. (See list of off-task behaviors)
Management	Taking attendance, making/receiving announcements, regrouping, forming lines, discipline, collecting money, etc.
Distribute/Collect Materials	Teacher and/or students are involved in passing out papers, putting away materials, preparing to leave, or preparing or checking materials.
Transitions	Changing from one activity to another.